

## ABSTRACT

A process for producing a carbonyl compound involves allowing water to undergo phase transition to a supercritical or  
5 subcritical state in the presence of an alcohol compound so as to produce/generate water-derived hydrogen and at the same time convert the alcohol compound into a corresponding carbonyl compound. Specifically, the process is carried out by introducing the alcohol in a reaction tube along with water and heating and/or pressurizing  
10 the mixture of the alcohol and the water to bring the water into a subcritical or supercritical state. In this manner, water-derived hydrogen is produced and the alcohol is converted to a corresponding carbonyl compound. The process is preferably carried out in an oxygen-free environment.

15